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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,591	03/23/2004	Matthew R. Sivik	3258	2464

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THE LUBRIZOL CORPORATION
Patent Administrator - Mail Drop 022B
29400 Lakeland Boulevard
Wickliffe, OH 44092-2298

EXAMINER

LANG, AMY T

ART UNIT	PAPER NUMBER
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3731

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/806,591	Applicant(s) SIVIK ET AL.	
	Examiner AMY T. LANG	Art Unit 3731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 5, 10, 12-14, 16, and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/11/2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1, 5, 10, 12, 13, 16, and 17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 13 first recite wherein the non-polymeric hydrocarbyl substituted dicarbonyl derivative is selected from the group consisting of an acid, ester, salt, anhydride, ester acid, and acid-salt. Then the claims recite wherein the non-polymeric hydrocarbyl substituted dicarbonyl derivative is selected from a derivative of tartaric acid, muccic acid, citramalic acid, citric acid, and more listed acids. It is the examiner's position that this phrasing is confusing and unclear since two separate Markush groups appear to be claimed simultaneously for the same component. For example, if the ester

in the first group was chosen, then none of the acids in the second group correlate, yet the instant claims recite both groups as mandatory. Therefore, the chosen ester in the first group does not allow an acid in the second group to be chosen. Claims 5, 10, 12, 16, and 17 are dependent on claim 1 and therefore are also rendered indefinite.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claims 1, 5, 13, 14, 16, and 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson et al. (US 5,308,514) in view of Smith, Jr. (US 4,966,722).

With regard to **claims 1, 16, and 17**, Olson et al. (hereinafter Olson) discloses a grease composition comprising overbased calcium sulfonate containing solid particles of colloidally dispersed calcium carbonate in the form of calcite (column 1, lines 4-16). The grease composition also contains lubricating oil and a salt forming acid (column 4,

lines 20-28; column 5, lines 23-26). Olson further discloses the acid as an organic acid, specifically succinic acid (column 4, lines 20-26).

However, Olson does not specifically disclose the succinic as substituted with a hydrocarbyl. Smith, Jr. (hereinafter Smith) teaches that hydrocarbyl substituted succinic acids are well known in the art. Specifically hydrocarbyl moieties comprising an alkyl group from 10 to 20 carbon atoms (column 19, line 60 through column 20, line 31). Since Olson broadly discloses a succinic acid in the grease composition and Smith teaches that hydrocarbyl substituted succinic acids are well known in the art, it would have been obvious to one of ordinary skill in the art at the time of the invention for Olson to utilize the hydrocarbyl substituted succinic acid of Smith.

In addition, Olson teaches that the grease composition may comprise various polymer viscosity index improvers. However, Olson does not specifically disclose the viscosity index improvers. Smith teaches that ethylene-alpha-olefin copolymers are effective viscosity index improvers in lubricating compositions (column 1, lines 8-17). However, these copolymers tend to produce a haze in the composition. Smith further teaches wherein the addition of hydrocarbyl substituted succinic acids eliminates this haze in a lubricating composition (column 2, lines 40-61). The specific hydrocarbyl substituted succinic acids include hydrocarbyls having from 10 to 20 carbon atoms (column 19, line 60 through column 20, line 31). Therefore, it also would have been obvious to one of ordinary skill in the art for Olson to utilize the viscosity index improver and hydrocarbyl substituted succinic acid of Smith to produce a composition with improved viscosity index and a reduction of haze.

With regard to **claim 5**, Smith specifically discloses the hydrocarbyl moiety as decyl, dodecyl, tridecyl, etc. (column 20, lines 27-31).

With regards to **claims 13 and 14**, the process to prepare the composition, as disclosed by Olson, involves first mixing overbased calcium sulfonate, lubricating oil, and an acid producing compound (Example 1, column 8). Water, an aqueous solvent, was then added to the mixture followed by heating of the mixture to 280 degrees Fahrenheit (Example 1, column 8). The heating would intrinsically remove the water from the mixture by evaporation to produce a colloidal grease mixture. Olson further discloses adding additives to the grease mixture including viscosity index improvers (viscosity modifiers), oxidation inhibitors (rust inhibitors), and more (column 6, lines 8-19)

Olson does not disclose the specific use of phosphoric acid or succinic acid in Example 1 as the acid producing compound. Although Olson uses boric acid in the specific example, phosphoric acid and succinic acid are also other embodiments of the invention that are disclosed which would have been obvious to utilize.

7. **Claims 10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson (5,308,514) in view of Smith, Jr. (US 4,966,722) as applied to claim 1 above, and further in view of Muir (US 4,560,489) and Ney (US 5,392,525).

Olson in view of Smith discloses a grease composition comprised of an overbased organic acid, an acid producing compound, and lubricating oil. The organic acid, calcium sulfonate, is present in the composition up to 28 wt% (column 2, lines 45-

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50). The acid producing compound is present from 0.6 to 3.5 wt% (column 5, lines 29-32). Although Olson discloses the specific wt% of boric acid, other embodiments of the acid producing compound include phosphoric acid and succinic acid so that it would have been obvious to utilize these compounds from 0.6 to 3.5 wt%. The lubricating oil is present from 60 to 90 wt% (column 5, lines 23-26). The performance additive phenyl alpha naphthylamine, an oxidation inhibitor, is present in the composition at 8.3 grams, wherein the total composition weighing 1,660 grams (Example 1, column 8). Therefore, 0.5 wt% of the performance additive is present in the grease composition. The compound 12-hydroxystearic is present in the composition from 1 to 6 wt% (column 5, lines 33-42).

While Olson does not explicitly disclose a thickening agent, Muir provides evidence that 12-hydroxystearic acid is a known thickener to a grease composition (column 3, lines 9-17).

Olson does not specifically disclose a copolymer derived from an olefin and an unsaturated dicarboxylic acid anhydride.

Ney also discloses a lubricating composition with a polymer based viscosity index improver (column 1, lines 4-8). The viscosity index improver comprises a copolymer with olefin and dicarboxylic acid anhydride, specifically maleic anhydride, monomer units (column 6, lines 37-42; column 7, lines 15-18; column 8, lines 31-67). This specific viscosity index improver aids in viscosity and dispersancy modification.

Since the polymer disclosed by Ney not only functions as a viscosity index improver, but also aids in dispersant properties, and Olson discloses a polymer viscosity

index improver, it would have been obvious for Olson to utilize the viscosity index improver disclosed by Ney. Therefore, the invention of Olson would comprise an acid producing compound of a copolymer.

Response to Arguments

8. Applicant's arguments, filed 09/04/2007, with respect to Brenda (US 5,830,832) in view of Cain (US 2003/000866 A1), and Olson (US 5,308,514) in view of Hayashi (US 4,670,173) have been fully considered and are persuasive. The rejections have been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMY T. LANG whose telephone number is (571)272-9057. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Todd Manahan can be reached on 571-272-4713. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

06/26/2008

/Amy T Lang/

Examiner, Art Unit 3731

/Todd E Manahan/

Supervisory Patent Examiner, Art Unit 3731